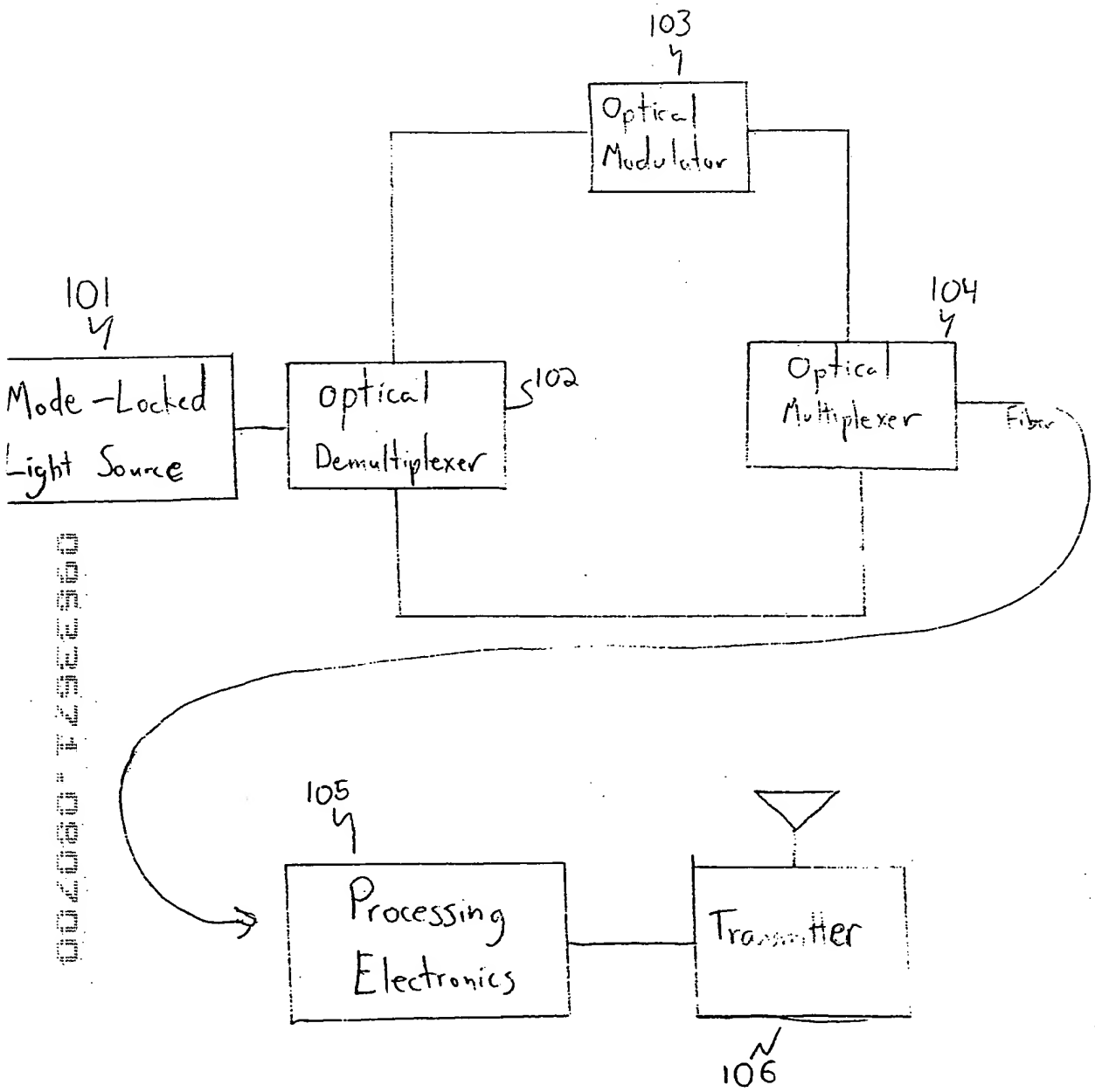

103
Optical Modulator
101
Mode-Locked Light Source
optical Demultiplexer
102
104
Optical Multiplexer
Fiber
105
Processing Electronics
Transmitter
106

FIGURE 1

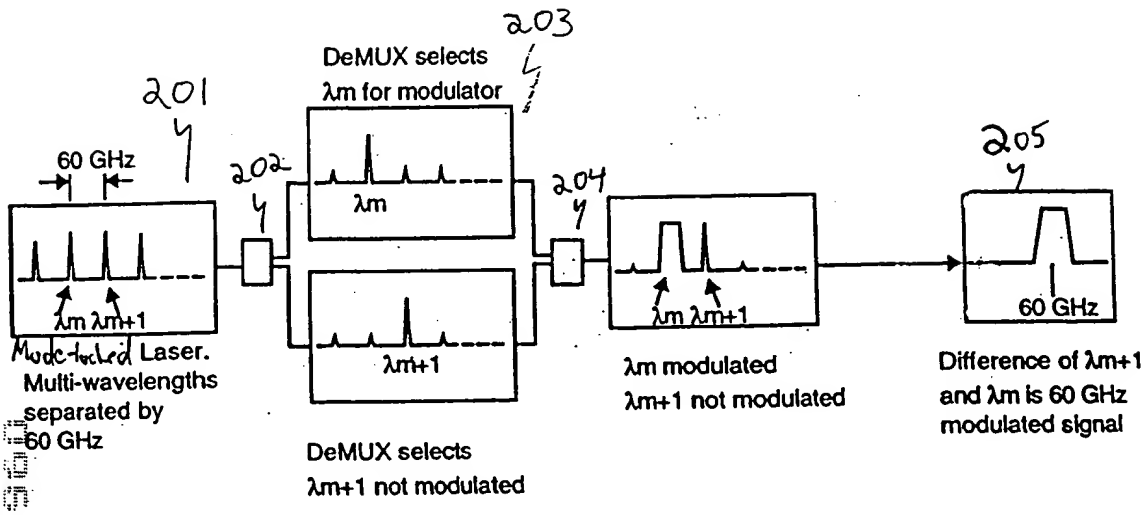
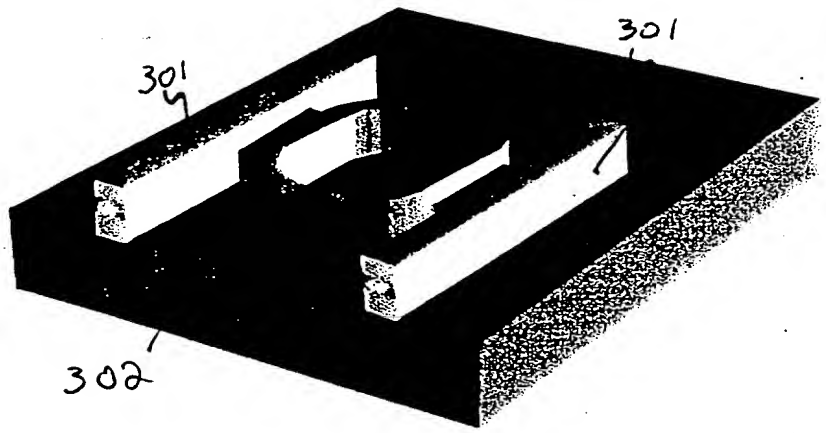
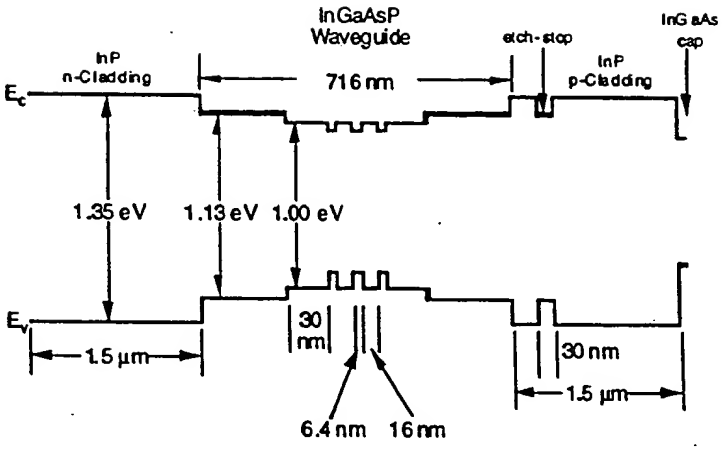

201
60 GHz
λm λm+1
Mode-locked Laser.
Multi-wavelengths
separated by
60 GHz
202
203
DeMUX selects
λm for modulator
λm
λm+1
DeMUX selects
λm+1 not modulated
204
λm λm+1
λm modulated
λm+1 not modulated
205
60 GHz
Difference of λm+1
and λm is 60 GHz
modulated signal

FIGURE 2



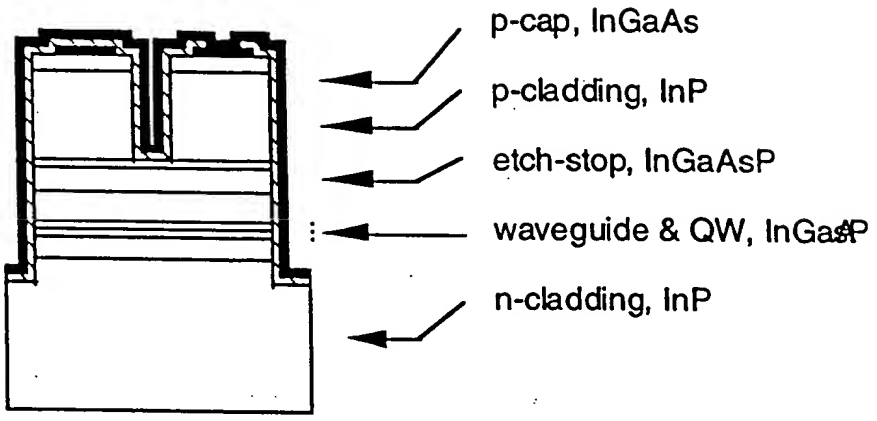
Schematic drawing of the racetrack laser.

FIGURE 3



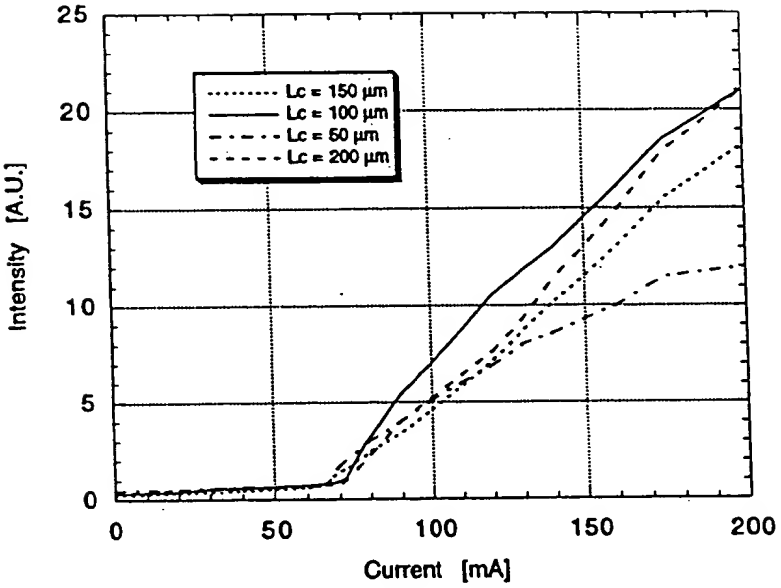
The schematic drawing of the epitaxial structure.

FIGURE 4



A schematic diagram of the wafer view shown in cross section taken from the coupling region between the ring and the straight sections.

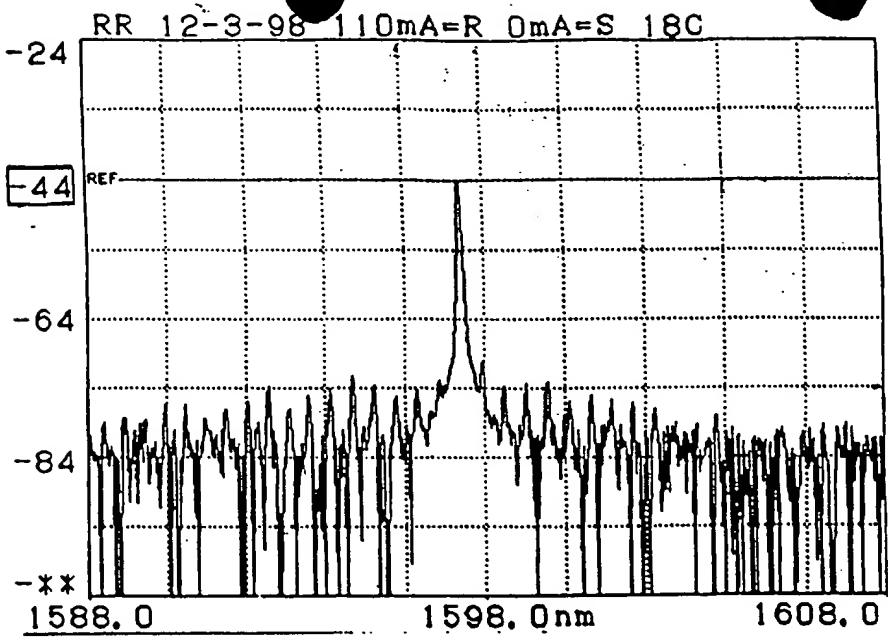
FIGURE 5



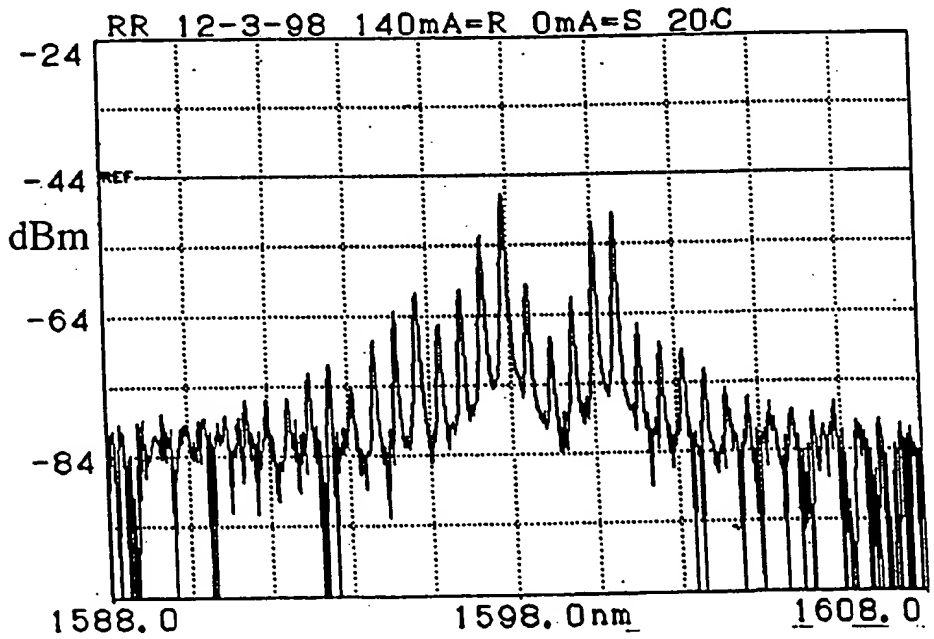
L-I curve for the racetrack laser with a coupling length ranging from 50-200µm showing nearly the same threshold current for all configurations, but with improved differential efficiency for the 100µm coupler.

FIGURE 6

FIGURE 7

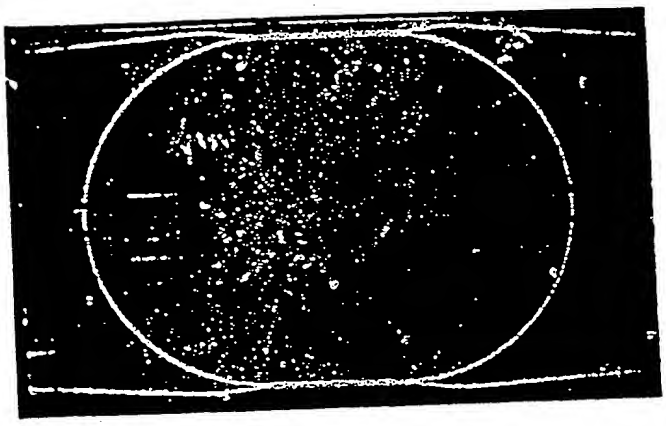


. . . . Lasing spectrum of the racetrack laser at a drive current I = 110 mA, showing single mode operation with an SMSR = 26 dB. Single-mode operation is maintained from threshold to nearly 2 I_{th}



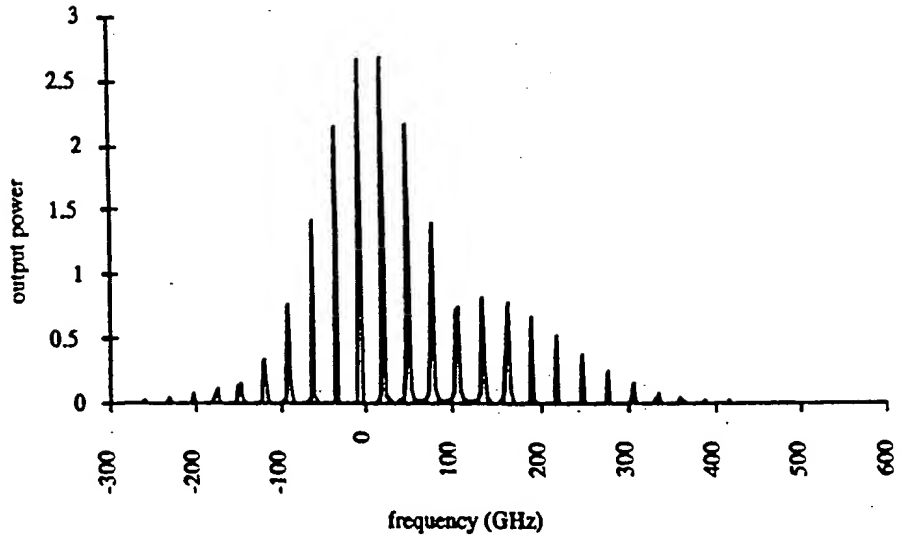
Lasing spectrum at a drive current I = 140 mA. An abrupt transition from single-mode (see Fig. 7) to multi-mode operation, apparently due to self-pulsating.

FIGURE 8



Dual-absorber mode-locked racetrack laser fabricated in GaAlAs/GaAs.

FIGURE 9



Computed output spectrum of a passively mode-locked racetrack laser.

FIGURE 10